



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,814	10/23/2003	Heizaburo Kato	371312002100	5429

25227 7590 07/28/2006

MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 300
MCLEAN, VA 22102

EXAMINER

PILKINGTON, JAMES

ART UNIT	PAPER NUMBER
----------	--------------

3682

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,814

Applicant(s)

KATO, HEIZABURO

Examiner

James Pilkington

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/21/05, 10/27/04, 4/7/04 & 10/23/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Drawings

2. The examiner believes that Figures 20-23 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (brief description for these Figures states that it is a "conventional drive mechanism" that is being illustrated). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the two cam follower rows aligned next to each other (clm 6 and 7) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware of in the specification. Also, each Figure needs its own brief description therefore, Figures 3A, 3B, 4A, 4B, 6A, 6B, 7A-7D, 13A, 13B, 15A and 15B need their own descriptions.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

Art Unit: 3682

regards as the invention. It is unclear to the examiner what the applicant is trying to claim by the phrase "all said cam followers belong to another one of said at least two of said cam follower rows roll on the other one of said pair of side surfaces" (page 51, line 17-19). Is the applicant attempting to claim something similar to the end of claim 5?

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Galloway, USP 4,898,044.

Re clm 1, Galloway discloses a drive mechanism interposed between two members (base 32 and carriage 40) said two members move relatively with respect to each other, at least one of said two members being guided to move linearly (carriage 40) in a linear moving direction said drive mechanism comprising:

- A plurality of rolling cam followers (38) that are rotatably supported to one of said two members (36, side wall of base 32), that are arranged in said linear moving direction, and that are space from each other
- A cam (48) that is rotatably supported on the other one of said two members (carriage 40) and that is provided in its circumference with a cam groove (see Figures 4 and 5) in which said rolling cam followers (38)

engage, the rotation axis of said cam (48) being arranged in the direction of said linear moving direction

Re clm 2, both ends, in the direction of said rotation axis, of said cam (48) are supported rotatably; said cam groove (Figures 4 and 5) is formed in the circumference of said cam throughout the length, in the direction of said rotation axis, of said cam (48); said cam groove is a helical groove oriented toward one direction in the circumferential direction of said cam (48) and before a cam follower (38) that is engaged in said cam groove disengages from said cam groove, an adjacent cam follower engages in said cam groove (C4/L55-57, "equally-spaced" one will be disengaging well another is engaging).

Re clm 3, wherein said length, in the direction of said rotation axis, of said cam (48) is set shorter than a stroke of the linear movement of said member (40) (the cam is shorter than the total possible travel).

Re clm 4, the cam groove is defined by a pair of inner side surfaces opposing each other and a bottom surface connecting said side surfaces (Figures 4 and 5); and each of said cam followers (38) on at least one of said side surface.

Re clm 5, at least two cam followers (38) engage in said cam groove simultaneously (length of cam is greater than the distance between 2 cams); one of at least two of these cam followers (38) rolls on one of said pair of inner side surfaces; and another one of said at least two of these cam followers (38) rolls on the other one of said pair of inner side surfaces.

Re clm 6, a plurality of said cam followers (38) are arranged in said linear moving direction to form a cam follower row; and at least two of these cam follower rows are aligned next to each other in said linear moving direction. (A row can be an number of cam followers and Galloway discloses multiple rows arranged in single line as applicant currently shows, see drawing objection).

Re clm 7, the cam groove is defined by a pair of inner side surfaces opposing each other and a bottom surface connecting said side surfaces (Figures 4 and 5); and each of said cam followers (38) on at least one of said side surfaces; each of said cam followers (38) rolls on at least one of said side surfaces; all said cam followers (38) belong to a certain cam follower row roll on either one of said side surfaces of said cam groove; all said cam followers belonging to one of at least two of said cam follower rows roll on one of said pair of side surfaces; and all said cam followers (38) belong to another one of said at least two of said cam follower rows roll on the other one of said pair of side surfaces.

Re clm 9, one of said two members (base 32) that rotatably supports said cam followers is a base fixedly installed on a floor; and the other one of said two members (40) that rotatably supports said cam is a table (carriage 40 has a table top 46) supported on said base to move linearly.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galloway '044 in view of Kennedy, US PGPub 2001/0042417.

Galloway discloses all of the claimed subject matter as described above.

Galloway also discloses that the cam follower (38) has a tapered cylindrical shape (Figure 3, end of the cylindrical portion is curved/tapered inward).

Galloway does not disclose that the cam groove is a tapered groove in which the width of the groove narrows toward the bottom in depth.

Kennedy teaches the cam groove (Figure 3) is a tapered groove in which the width of the groove narrows toward the bottom in depth for the purpose of connecting two gear arrangements (C1/L45-65).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Galloway and provide for the cam groove to be a tapered groove in which the width of the groove narrows toward the bottom in depth, as taught by Kennedy, for the purpose of connecting two gear arrangements.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galloway '044 in view of Yanagisawa, USP 6,327,929.

Galloway discloses all of the claimed subject matter as described above.

Galloway does not disclose a plurality of movable table units that are stacked in multiple layers so that said moveable table units move with respect to each other in different directions.

Yanagisawa teaches a plurality of movable table units (See Figure 1, one arranged in the x position and one in the y position) that are stacked in multiple layers so that said moveable table units move with respect to each other in different directions (see Figure 1) for the purpose of providing a two-dimensional drive system with improved positioning accuracy (C2/L46-50).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Galloway and provide a plurality of movable table units that are stacked in multiple layers so that said moveable table units move with respect to each other in different directions, as taught by Yanagisawa, for the purpose of providing a two-dimensional drive system with improved positioning accuracy.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pilkington whose telephone number is (571) 272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JP
JP
7.18.2006



RICHARD RIDLEY
SUPERVISORY PATENT EXAMINER